

Facilities Quarterly

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY ♦ FACILITIES DIVISION NEWSLETTER

JAN/APRIL
2004

MOLECULAR FOUNDRY CONSTRUCTION BEGINS

In December construction started on Berkeley Lab's first major new building since completion of the Human Genome Building six years ago. Located between the National Center for Electron Microscopy and Building 66, the Molecular Foundry will be Berkeley Lab's largest laboratory building, with a total of 89,000 gross sq ft (8300 gross sq meters) on six floors for laboratories, offices, and support facilities. A separate, 6000 GSF (560 GSM) utility center is also part of the project. The building will be carved into the hillside near Lawrence Road and will provide a dramatic 50-ft cantilever over the Strawberry Canyon.

The Molecular Foundry will be one of five DOE nanosciences user facilities, featuring state-of-the-art laboratories for the design, modeling, synthesis, processing, fabrication and characterization of novel molecules and nanoscale materials. The Foundry will include wet and dry

laboratories, "specialty" rooms (controlled-temperature, low vibration, and "clean" areas), laboratory support facilities and equipment rooms, conference and seminar rooms, and offices. The facility will accommodate approximately 140 persons, including roughly 40 visitors, 35 students or postdoctoral fellows, and 65 scientific, technical, and administrative staff.

There are six scientific facilities that will be housed in the Foundry. Each facility is headed by a Facility Director that was consulted throughout the design process to ensure the new facility serves users' core needs.

The facility consists of a six-story main research building and an adjacent utility building. Each floor of the research building was designed to serve a particular purpose. The most vibration-sensitive equipment (for the imaging and

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FACILITIES PROFILE: The Rosas' Christmas

On December 20th 2003, Custodial Supervisor George Rosas and his wife Norma packed up their pickup truck and a trailer with a full load of toys, shoes, clothes, towels and countless other items and headed south to Yuma, Arizona. On the 23th they stocked up on food: 100 lb of pinto beans, 115 lb of rice, 60 lb of oranges, 150 lb of potatoes, powdered milk, and other essentials. Then, along with their son Philip Rosas, two friends of his, and a local pastor, they crossed into Mexico and headed for the border city of

San Luis, past the city dump, and into a barren flatland scattered with makeshift huts. It is here, with the poorest of San Luis's poor, that George and Norma have chosen to spend Christmas every year since 2000.

In his office, George has set up a poster board display with some photos from last year's trip. In one, a little girl hugs a giant stuffed bunny, bigger than she is. In another three boys show off the Christmas treasures that George and Norma have brought them. Behind them sit a few one-room shacks, constructed of plywood, corrugated steel, cardboard, and whatever else the dump would

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Children of San Luis. (photo by George Rosas)

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<http://www.lbl.gov/Workplace/Facilities>.

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manipulation lab) is located on the first floor, because low vibration is most easily achieved on grade space.

The second floor houses the nanofabrication facility, which is entirely within a clean room. The floor is

stepped to provide additional minimal vibration, on-grade space for vibration sensitive equipment. The Theory facility, seminar room, and program administration offices will be on the third floor. The Inorganic Structures lab (fourth floor), Biological Nanostructures (fifth floor), and Organic Synthesis lab (sixth floor) are similar in layout, with offices on the cantilever end of the building and laboratories on the hillside end of the building. The Organic Synthesis lab, which has the highest density of fume hoods, is on the top floor, minimizing the duct runs to the fume fans on the roof. The Lawrence Road bus stop will be accessible from the fifth floor. The adjacent utility building will house a chiller plant, boiler plant, main substation, and a deionized water plant. It is separate from the main research building to minimize the effect of vibrations on sensitive equipment.

The Molecular Foundry satisfies the H8 building code classification, signifying a low-level of chemical use in the building.

Throughout the construction process there will be intermittent interruptions on Lawrence Road, but car and foot traffic will be unaffected. Construction work will be confined to west of Lawrence Road, and down the hill between Buildings 66 and 72. Dirt from a 70-foot-deep excavation at the east end of the main building site will be used as fill for the lower western part of the site.

Work on the structural steel, superstructure, and shell of the main building will start in October 2004 and end in April 2005; work on the main building's exterior skin and windows will begin January 2005, and finish June 2005.

Construction will take about two years, with completion scheduled for late 2005.

Theresa Duque

FROM THE DIVISION DIRECTOR...

Most readers will note that this issue of the Facilities Quarterly actually spans two quarters. There were a number of reasons for this; however, with this issue we hope to be back on track with a regular schedule.

As we complete the first half of the fiscal year, numerous noteworthy accomplishments stand out, including the demolition and removal of the Bevatron EPB Hall, the groundbreaking of the Molecular Foundry, the completion of the Sitewide Water Project, and the Regents' approval of the Building 49 design. In addition, work continues on the Long Range Development Plan, the User Hostel project, and the Life Sciences BRIDGE project. All of these are expected to come to the next level of fruition by the end of the calendar year.

On an internal focus, I am pleased that Steve Black has been appointed as the new Department Head – Plant Operations. Steve officially began his new duties on April 15. The recruitment for the Department Head – Design & Construction is nearing the final phases. As each of the new senior managers takes office, the new Facilities organizational structure will be deployed and the process of moving forward with improvements in communications, processes and service delivery will be initiated.

Consistent with the emphasis on improvements, a special Facilities Review Team was assembled and brought to the Laboratory during the week of March 1. The team was charged with examining Facilities business, contract, and construction processes, as well as taking a close look at internal culture and work environment. The team consisted of current and former senior administrators from four major research universities, as well as Brookhaven National Laboratory, and Anil More from the Administrative Services Department. The team provided insightful observations and recommendations on a broad range of business process, communications, leadership and organizational issues. Facilities leadership is committed to the development of a comprehensive action plan to address all of these areas.

In the upcoming months, special efforts will be launched to engage the Facilities Division in a dialogue on business process, communication, ethics, employee development, and the development of an internal procedures manual. These efforts are targeted at not only addressing the review team's findings, but also to provide an environment of participation in which many Facilities staff can take personal ownership of the progress being made. As an initial step, a volunteer group is being assembled to work with Facilities leadership on the implementation of organizational mission, goals and values that will form the framework for positive changes in the work environment.

With the internal and external activities noted above, this promises to be an exciting time to be part of the Facilities team!

George Reyes

SITEWIDE WATER PROJECT COMPLETED

After eighteen months of trenching, pipe laying, valve fitting, road building, and tank welding, the Sitewide Water Project is complete. This means that our routes to our offices will no longer be impeded by gaping holes in the middle of the road and the presence of subcontractor Ghilotti Bros' brightly colored trucks. More importantly, though, it means the Berkeley Lab will have a highly reliable water supply system for many decades to come.

The \$8.3 million project was needed to correct serious deficiencies in the Lab's 10 km (6 miles) of aging water mains and to provide other improvements that will ensure the system's integrity and longevity. The project replaced old, fragile cast iron piping with ductile iron pipe. The rest of the existing ductile iron pipe and cement-lined, coat-

ed-steel pipe was equipped with an impressed-current cathodic protection system to arrest corrosion. In addition, 80 leaky isolation valves and seven pressure reducing stations were replaced, two existing water storage tanks received seismic upgrades, and an additional emergency storage tank and access road were constructed uphill of Building 85.

Prior to these improvements, Berkeley Lab's water system was highly vulnerable to failure. Because of its brittle condition, all the cast iron pipe was extremely susceptible to breaks and failures, with 10 failures since 1989. Older parts of the HPW system were installed in areas with unstable soil, where ground settlement added strain to the pipes, particularly at joints. Corrosive soil

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COMPLIMENTS

Ross Fisher of EH&S commends Building 51 Decommissioning project director Margaret Goglia, along with John Patterson, Kevin Trigales and the rigging crew, and Kim Hill for their commitment to safety. "The outcome," says Fisher, "was completion of the year's project goal without injury or lost work time."

Don Van Acker and Tom Caronna of EH&S also have high praise for Rigging Foreman Kevin Trigales and the Rigging Crew, Ron Silva, Malcolm Hawkins, and Kevin MacPherson. According to Caronna, "They perform so well that we tend to forget how excellent they really are. They are very knowledgeable, understand safety and work very safely, plan very well and anticipate problems, and are able to accomplish some pretty amazing things at this lab." Van Acker adds that, "They make hundreds of lifts each year without any accidents or injuries....I send my compliments also for the finest and safest crew anywhere."

CIS Department Head Rosemary Lowden writes us about the successful move of the Computer Training Room, which had to be moved quickly on December 4 and 5 from 51L to Building 90 to support classes on December 8. According to Lowden, "What is striking about the effort was the degree of coordination and teamwork displayed by your division in order to complete the project in a short amount of time. Starting with Roby Berninzoni, who worked with us to coordinate the effort, a number of Facilities staff each contributed their expertise in an effort that is a model for teamwork." The Facilities team included: Steve Waters, Warren Ng, Virgil Alonzo, Jeff Hull, Ray Estrada, Bill Mattson, Barry Pope, John Tully, Rod Bennett, Larry Cantrell, Mark Huebschle, Hal Smith, Pat Dupont, Tracy Knight, and Ronnie Woods. Lowden adds that, "We would also like to commend Chuck Taberski, Small Projects Manager, and all other Facilities supervisors who expedited this project so that the training room operations were minimally disrupted."

Joe Cullen of the Facilities Paint Shop describes custodian Irene Pezua as "...fabulous." While painting the hallways in Building 70A Cullen noticed that, "The bathrooms are always clean, the floors are spotless... You can tell she enjoys her work."

Cullen also has good words for the custodial assistance provided by Kathy Court and Wanda Haskett in Building 76: "Lord help you if you get in their way—they are dynamite!"

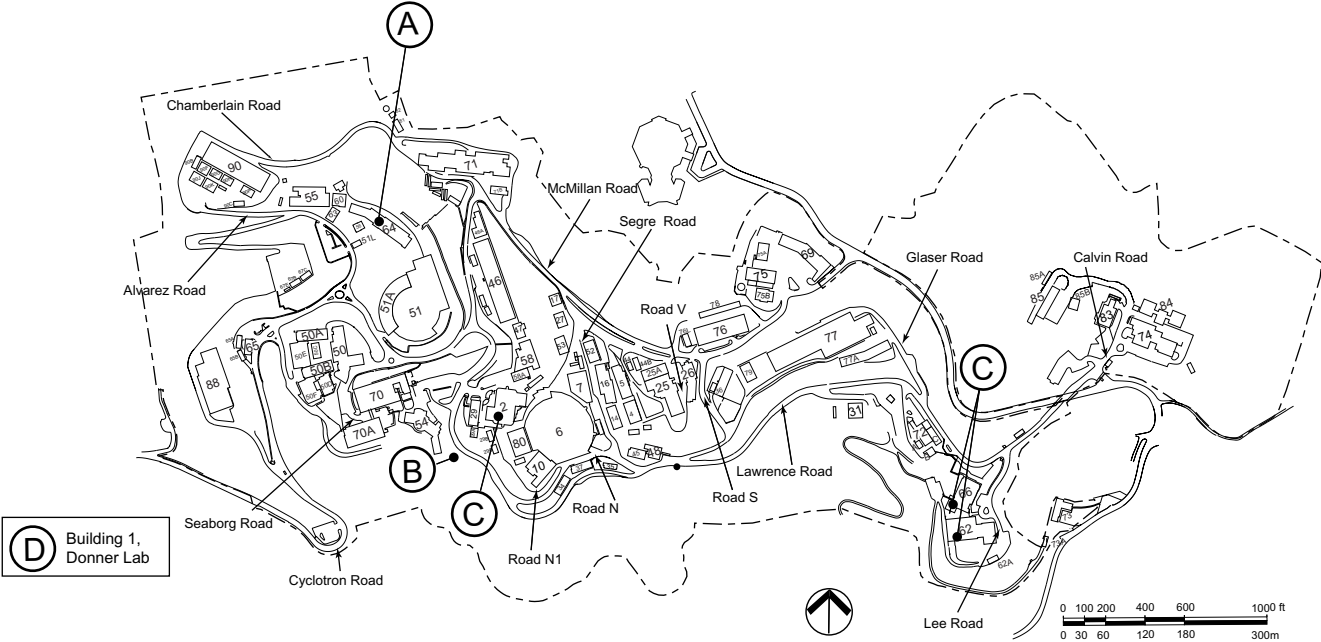
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WRC welcomes questions or comments about Facilities Quarterly.

CONSTRUCTION AND YOU

Current construction projects affecting parking, or vehicular or pedestrian circulation



Project Contacts. The name in parentheses after each project is the Project Manager (PM) or other person who is responsible for project oversight: coordinating all phases from design through construction; controlling cost, scope and schedule; and ensuring client satisfaction. This person will be happy to answer any questions about the project.

A Bldg 64: Addition of Labs and Offices

APR	MAY	JUN
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Construction of labs and offices will impact access to Bldg 64 and areas to the east and west. Occasional obstruction of traffic may occur. (Bill Wu, x5216)

Bldg 2, 62, 66: Molecular Foundry Ramp-up Project

APR	MAY	JUN
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Construction will impact access to Buildings 2, 62, and 66 starting in May. (Bill Wu, x5216)

B Big C Substation Demolition

APR	MAY	JUN
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Demolition activities will impact parking and access in the area. Parking spaces along Lawrence Rd will be closed temporarily and several spaces in Lot Z will be closed to be used as an equipment staging area. Periodic one-way traffic controls will be used on Lawrence Rd and Glaser Rd to allow equipment access to the site and cable removal. (Dan Galvez, x6213)

Bldg 1: Genomes to Life Lab

APR	MAY	JUN
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Construction is in progress on the second and fourth floors. Occupants may be inconvenienced at times. (Bill Wu, x5216)

“CAUTION—CONSTRUCTION AREA”

Construction barricades and warnings are there for your protection. Under no circumstances should you cross a construction barricade, or disobey posted warnings or directions. Contact the Project Manager for escorted access to construction areas.

ON THE DRAWING BOARD

projects in study or conceptual design

Bldg 49: Office Building

This 60,000-sq-ft (5600-sq-meter) office building will be designed and constructed by a private developer on the LBNL site adjacent to Cyclotron Road and near the Blackberry Gate. The building will contain four stories of offices and a fifth-floor conference center. A bridge will connect Building 50 to the fifth floor.

(Dave Tudor, x4171)

User Support Building

This 30,000-sq-ft (2800-sq-meter) building will be located on the site of the current Building 10. The project will be double the size of Building 10 and provide modern research support space and offices. Currently, the project is included in the DOE FY 2005 funding cycle, with a planned occupancy in FY 2008. The USB will support researchers at all of LBNL's User Facilities and provide additional staging area for ALS experiments.

(Richard Stanton, x6221)

IN PROGRESS

funded projects

Bldg 1: Genomes to Life Lab

Funded in FY2004, this project will relocate Genomes to Life administrative, Computational Bio-Spice bench experimental, and Hildebrand Hall staff to second and fourth floor offices in Donner Laboratory. Work includes replacing fume hoods, utilities, and sprinklers; refurbishing benches; lighting and flooring; and HVAC. (Bill Wu, x5216)

Bldg 64: Addition of Labs and Offices

This project will build out the last high-bay space in Building 64, creating additional laboratories and office spaces. The scope includes addition of a second floor, a new elevator, and rearrangement of exit paths. Design is complete and the construction contract has been awarded. (Bill Wu, x5216)

Building 77: Rehabilitation of Building Structure and Systems, Phase 2

This project will correct mechanical, electrical and architectural deficiencies in Buildings 77 and 77A. Design is underway. (Marty Baron, x4135)

Bldg 90: HVAC Upgrade Project

This project used a technology invented by EETD scientists to seal leaks totalling approximately 10,000 cubic feet per minute (cfm) in the building HVAC sys-

tem. Cooling additions are underway and will continue through late spring. Building occupants will be kept fully informed of project activities through a variety of means. (Marty Baron, x4135)

Molecular Foundry

Berkeley Lab's newest User Facility, the Molecular Foundry, will be constructed near the Building 72 complex. It will consist of a research building of about 89,000 gross sq ft (8300 gross sq meters) and a utility center of about 6,000 gross sq ft (560 gross sq meters). The research building will have state-of-the-art clean rooms for the design, modeling, synthesis, processing, fabrication and characterization of novel molecules and nanoscale materials. Offices and laboratories will support nanoscale research in materials science, physics, chemistry, biology, and molecular biology. Construction of the Molecular Foundry began in December 2003.

(Joe Harkins, x7486)

Molecular Foundry Ramp-up Project

This project will provide interim space for Molecular Foundry nanoscience research until the Molecular Foundry is complete. Work involves renovation of labs in Buildings 2, 62, and 66.

(Bill Wu, x5216)

EPB HALL IS NOW A MEMORY

A Berkeley Lab landmark disappeared this March as the last girders of Building 51B, the External Particle Beam (EPB) Hall, were loaded on a truck and carted offsite. The entire dismantling process required less than three months of field work and, thanks to the hard work of many, was a model of planning and efficiency.

"The disassembly by the subcontractor looked like it was choreographed, and it was," says Margaret Goglia, who is program manager for Building 51/Bevatron disassembly. If the demolition subcontractor, Evans Brothers Inc (EBI), performed well, though, it was project manager Richard Stanton and project superintendent John Patterson wrote the "score" for the work. As Facilities project manager, Stanton had overall responsibility for the scope, schedule and budget for the work. Patterson was the jobsite superintendent, responsible for the day-to-day coordination with the subcontractor's workforce.

According to Goglia, "Richard and John made a very, very effective team. Between the two of them everything was covered. Their job was to make it look easy—and they did."

Stanton and Patterson began working on the project engineering and work plan last July, in collaboration with the consulting engineering firm, Winzler & Kelly. The visible disassembly work that took place in January, February, and the early part of March was the culmination of months of planning and approvals.

Personnel from the Facilities Division partnered with colleagues in EH&S and Procurement to address compliance with a myriad of regulations governing the work. Many approvals were sought and obtained from the Bay Area Air Quality Management District (BAAQMD), EH&S, DOE, and the Berkeley Site Office.

Worker safety was at the top of the list. Balancing different sets of safety requirements was a challenge. Careful choices were made to ensure that mitigating one hazard didn't increase risk for another. For example, workers engaged in lead paint removal had to not only wear respirators and coveralls, but also fall protection gear. A balance was struck between the worker's need for mobility and unimpeded vision and protection from harmful exposure. Another safety concern was the need to keep pedestrian traffic away and vehicular traffic circulating while accommodating the heavy truck traffic needed to carry structural steel and other materials offsite for recycling.

To prevent adverse environmental effects, berms were built to contain surface runoff from the newly exposed concrete building pad. Lead contamination from paint and years of lead dust accumulation was a primary concern, although no measurable quantities were found to be present in the runoff water. A number of groundwater monitoring wells belonging to Berkeley Lab's subsurface site restoration initiative are located on the EPB Hall site, and the project coordinated with Iraj Javandal of Earth



Two cranes work together to lower the EPB Hall's massive bridge crane. (photos by John Patterson)

Sciences to ensure that pumping wells and monitoring stations remained in operation throughout the demolition process.

Another challenge was to mitigate the impact of demolition activities on continuing Laboratory operations. A number of utility lines snaked through the EPB Hall on their way to other facilities. These had to be rerouted prior to demolition.

Building 51F, which contains the ESD Rock Fluid Imaging Lab, is located within the 51B footprint. Operations in the lab were able to continue during off hours, and the building itself was protected by scaffolding. Building 51L, a training facility, could be vacated and so was removed. Dick Dicely of Facilities Planning was instrumental in swiftly relocating training facility operations to Building 90 (see *Compliments*).

As the demolition progressed, there were some bad weather days on which safety was a consideration and on a few occasions work was stopped because of the weather.

The “grand finale” of the process, and the single largest crane lift, was the removal of the immense 190,000-lb bridge crane, which required its own complete work and safety plans, themselves the products of weeks of planning, calculation, and engineering. The feasibility of using two cranes for the task was proven by an old archival photo of the EPB hall construction, which shows two cranes lifting the same piece onto the crane rails. The reverse process, removing the bridge, was witnessed at lunch time by many “sidewalk superintendents,” who watched as two sizable cranes worked in close coordination to gently lower the load. As Goglia sums it up, “Everything came down in a controlled manner.”

It takes many differing talents and skills at the Lab to bring together a successful project—some of the key team members for the EPB Hall deconstruction were: Ron



Wayne Evans (left) of Evans Brothers receives unexpected congratulations from crane operator Steve Lasack following bridge crane lift. (photo by John Patterson)

Acord, EH&S Industrial Hygiene; Fred Angliss, Facilities Structural Engineer; Sally Cherene, ASD Facilities Project Assistant; Rob Connelly, EH&S Industrial Hygiene; Laura Crosby, Financial Services Senior Contract Administrator; Mike Dong, Facilities Mechanical Engineering Section Head; Ross Fisher, EH&S Safety Engineer; Sabah Hassan, ASD Facilities Administrative and Records Manager; Dan Kevin, Facilities Environmental Planning; Dick Dicely, Facilities Planning; Tamara Krymskaya, Facilities Electrical Engineer; Ginny Lackner, EH&S Environmental Services; Willy Lopez, Facilities Inspection Group Leader; Nick Peterson, Facilities Architect; Gary Piermattei, EH&S LBNL Fire Marshal; and Loretta Valentine, EH&S Construction Safety.

Safety Corner: Facilities Fashions Daring, Yet Safe

The Building 50 Auditorium pulsed to the beat of light rock on November 4 as Facilities Division models showed off the latest in personal protective equipment for the debut of the Facilities Fashion Show. Conceived by Facilities' WOW steering committee, the show featured everything the well-appointed man or woman needs, from chemical suits to gardening gloves, to stay safe in edgy situations. Facilities Director George Reyes, who sported a stunning checkered barbecue apron and gloves, noted that, “This was an excellent opportunity to showcase both the equipment and the spirit and intent of the WOW program.”



Fasten your seat belts— Site Services manager Bill Llewellyn is driving in style. (photo by Robert Couto)

The Rosas *continued from page 1*

yield, in an otherwise unrelieved expanse of flat, bare dirt. One of these buildings is a church. Inside is where the parish used to store folding chairs and supplies. The services were held outside, in an area flanked by a fence constructed of old mattress springs. That church is gone now. The owner offered to sell it to the parishioners, but they couldn't come up with the money.

"These people have nothing," George explains. "Wherever they can find a place that's not occupied and with whatever materials they can put together they'll build a little house. They're miles from stores, miles from church, you can't grow anything, and they're just now getting electrical power. Our main objective now is to build them a real church."

What has become the Rosas' yearly pilgrimage originated in Norma's wish to do something for orphaned children in her home town. An orphan herself, Norma Rosas was raised by her aunt in San Luis. As George

explains, "She always had a desire to help those kids because she remembers when the missionaries used to come down when she was a kid. In 2000, we took down several boxes of toys for the kids. At the time it was just something to do – a Christmas thing."

Since then, word has spread, and the scale of the Rosas' project has increased dramatically. In 2003, George and Norma's church, Templo Santo in Antioch, local businesses, and a number of George's coworkers at the Lab all pitched in with donations. George extends special thanks to the many people in Facilities who brought in donations: "They brought in clothes, toys, wonderful stuff that looks brand new."

Beginning in January 2003, George started stockpiling contributions for their 2003 trip, and hauled two truckloads to Yuma, where the pastor of a participating church provides storage. Altogether, the year's haul amounted to 60 large and extra-large moving boxes.

This last Christmas, three Mexican and two American churches participated, visiting three churches in the San Luis area to distribute groceries and gifts to families in remote areas. The last day, December 27, was spent at a prison.

The church service at the prison included Christian music by a group from Yuma as well as puppets and pantomime. For George, the prison visit was the most moving event of the trip. "You can see the emptiness on their faces. There's just a lot of need there. It's an eye-opening experience. I used to believe that if a man was in prison, it was because he belonged there. 'Let 'em rot.' Really, that was

my attitude. Now I see them differently, as human beings who made bad choices."

"There are so many prisoners there that don't have anybody. The families that are there bring them food and money but the other ones are on their own. They just get the bare minimum. To get a little extra they make things out of wood or try to sell shoe shines."

As deep an impression as this year's trip has made, though, George is already thinking about Christmas 2004. "The prison minister tried to get gifts for all the prisoners' children, but he was short. So this year my wife and I decided we're going to ask him to give us a list of all the prisoners and their children, and we're going to see if we can find some sponsors for them."

As for the church the Rosas' plan to build, they have a meeting scheduled soon with the regional leader of their church.

WATER PROJECT

continued from pg. 3

conditions contributed to accelerated deterioration of the piping. Water pipelines in the East Canyon area could have been breached by a landslide or earthquake, leaving the area without water for fire protection.

This project has extended the service life of the HPW system by a minimum of 40 years, mitigated the threat of major pipe failures, lowered maintenance costs associated with the present high rate of pipe breaks, and improved system reliability and capacity. These improvements ensure that Berkeley Lab will have a water system capable of handling increased future demands as well as fire and earthquake emergencies.

Facilities Quarterly

Editor: Jim Miller

Layout: TEID

Facilities Quarterly is published in January, April, July and October by the Facilities Department, Ernest Orlando Lawrence Berkeley National Laboratory.

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This work was supported by the U.S. Department of Energy under Contract No. DE-AC03-76SF00098

Ernest Orlando Lawrence Berkeley National Laboratory, University of California

LBLN/PUB-678 4/2004-4200

Printed on  recycled paper.